FIG.1

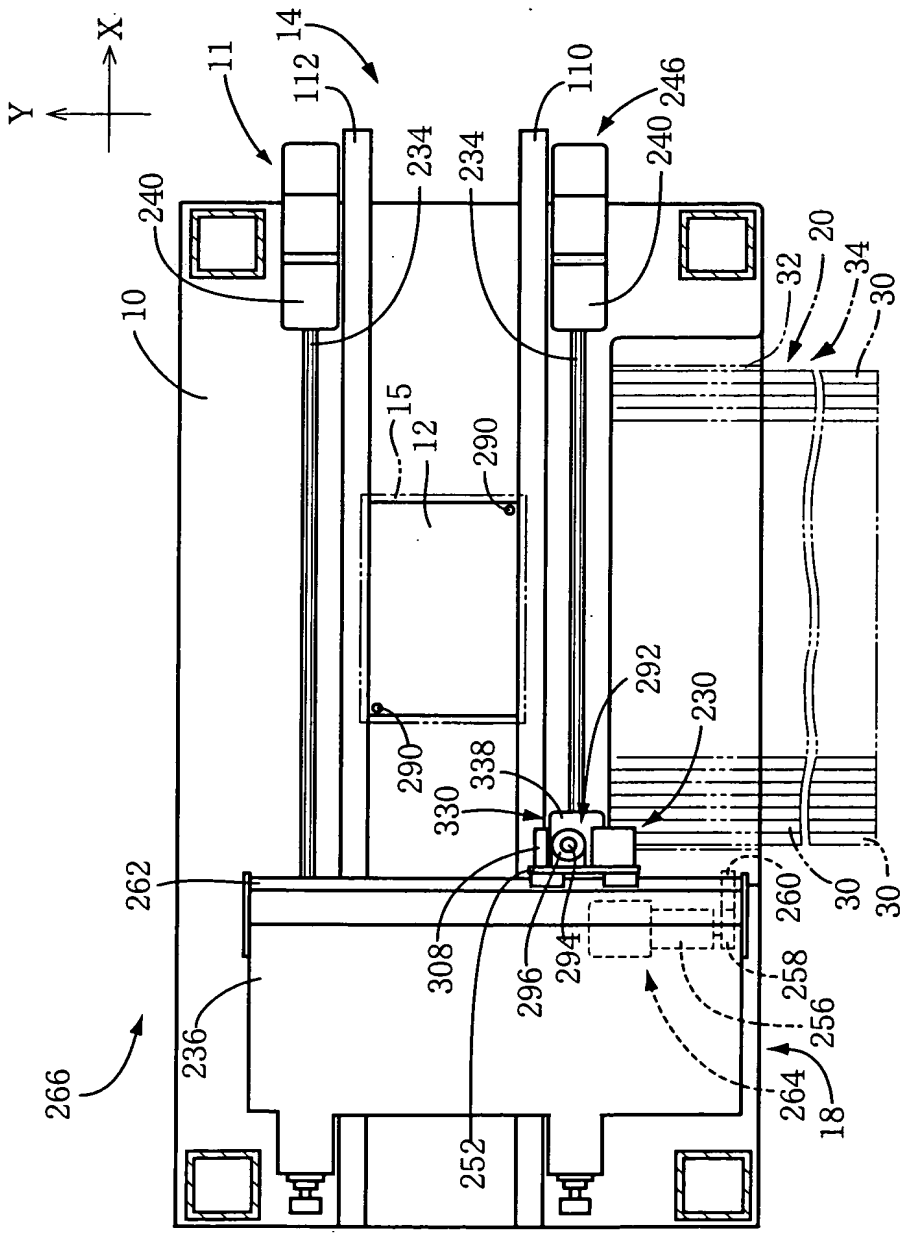

Y
X
11
14
112
110
246
240
234
234
240
10
20
32
34
30
15
12
290
290
292
230
338
330
262
308
296
294
260
30
30
258
256
264
18
236
266
252

FIG.2

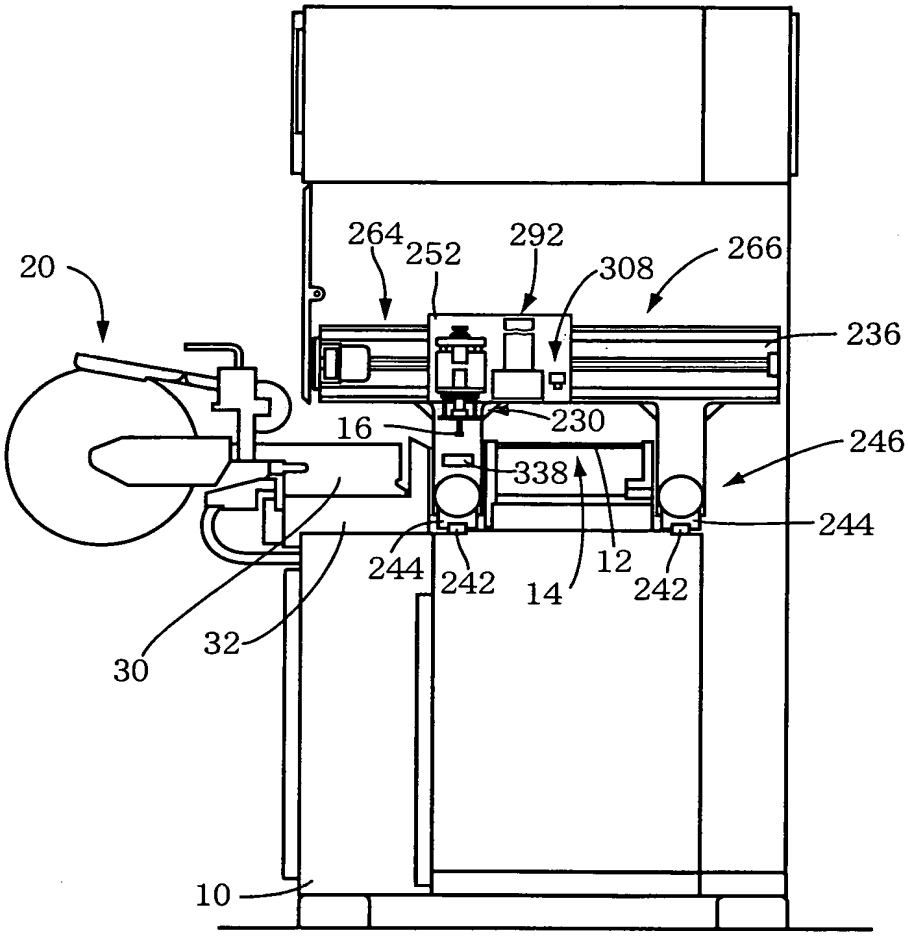

20
264
252
292
308
266
236
16
230
246
338
244
244
242
12
14
242
30
32
10

FIG.3

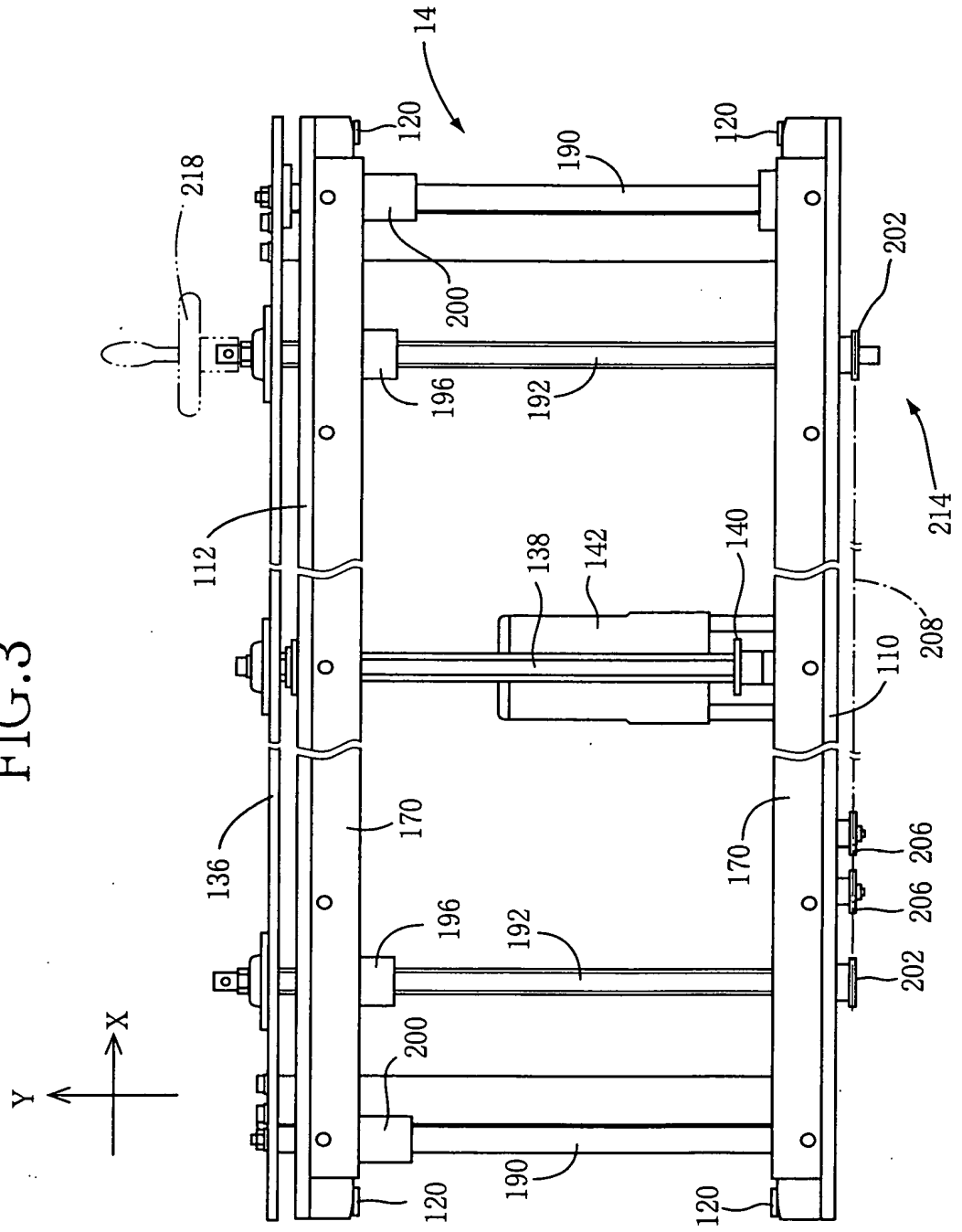

14
120
190
120
218
202
200
196
192
214
112
138
142
140
208
110
136
170
170
206
206
196
192
202
200
190
120
120
Y
X

FIG.4

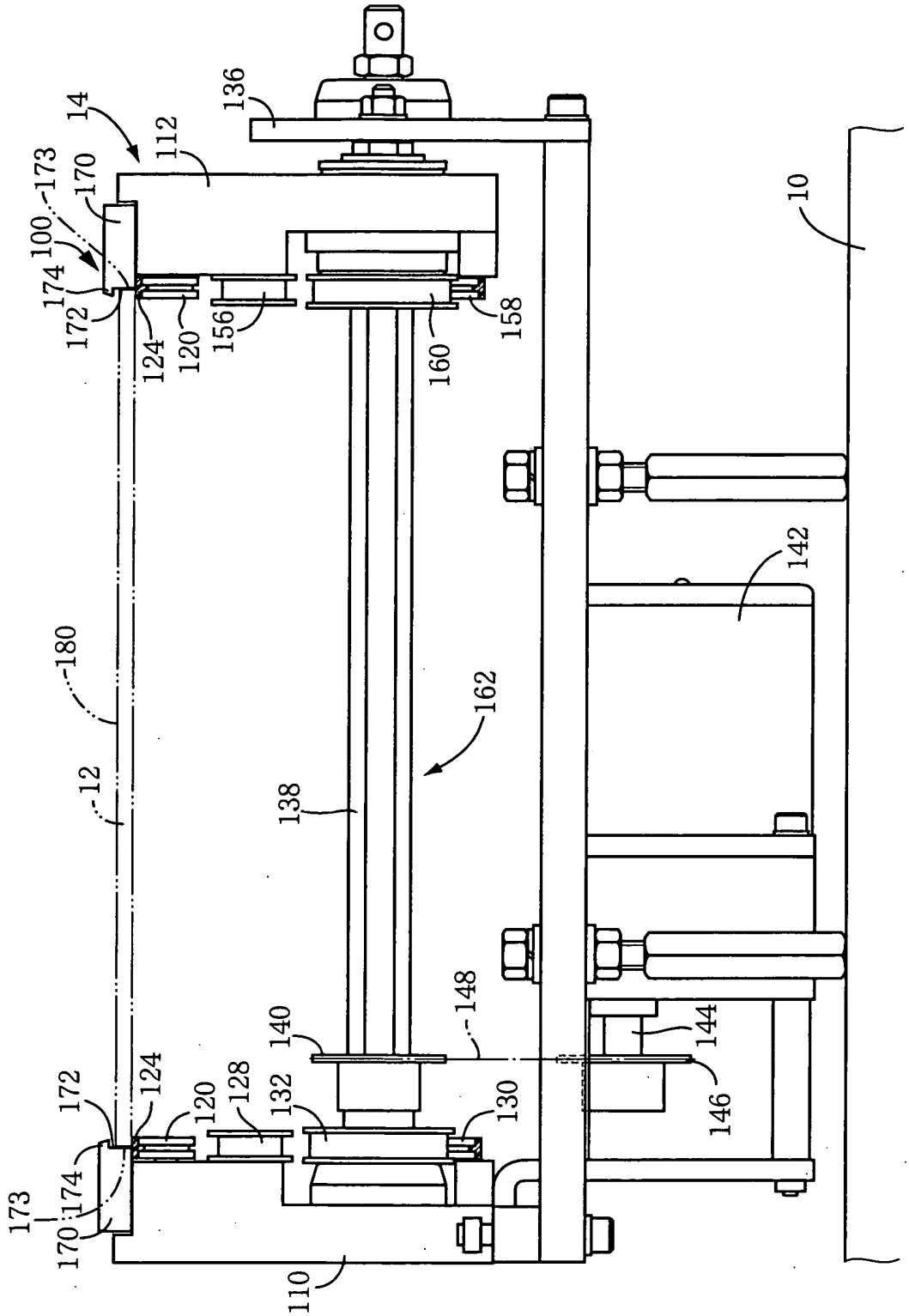

14
112
136
173
170
100
174
172
124
120
156
158
160
10
180
12
162
138
142
148
140
144
146
128
132
130
110

FIG.5

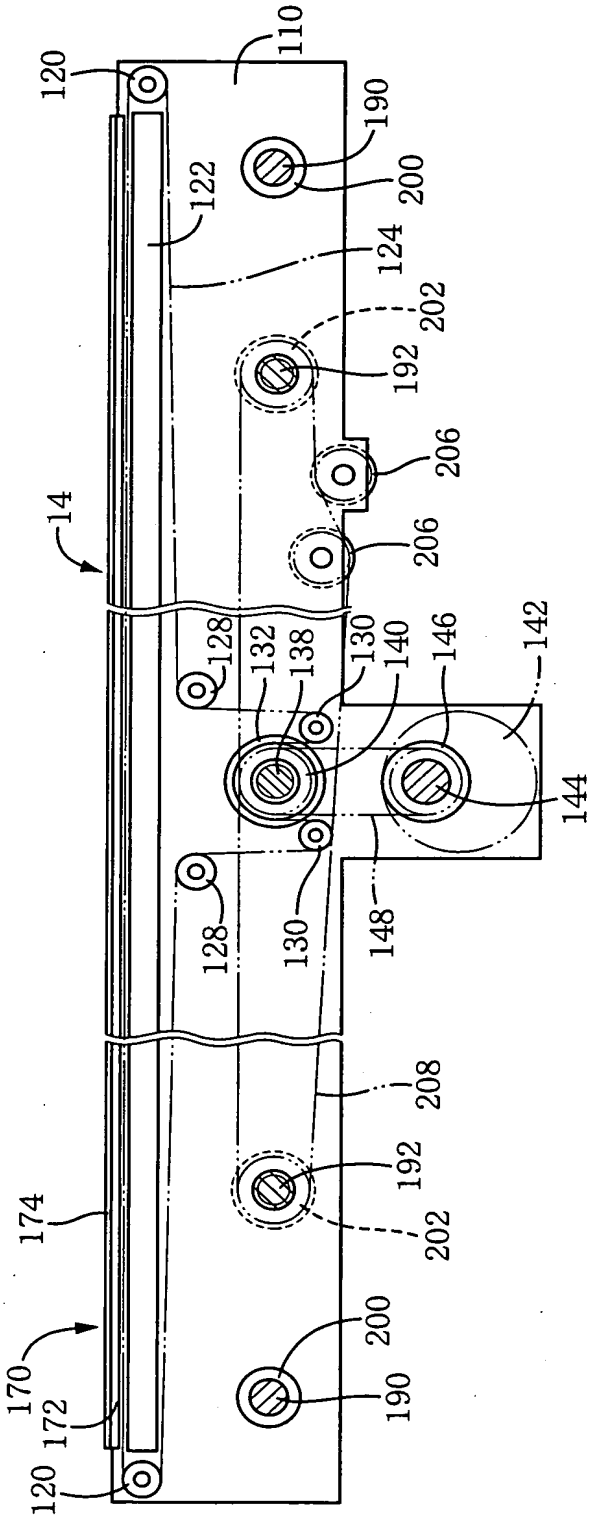

110
120
190
200
122
124
202
192
206
206
14
128
132
138
130
140
146
142
144
148
128
130
208
192
202
174
200
190
170
172
120

FIG.6

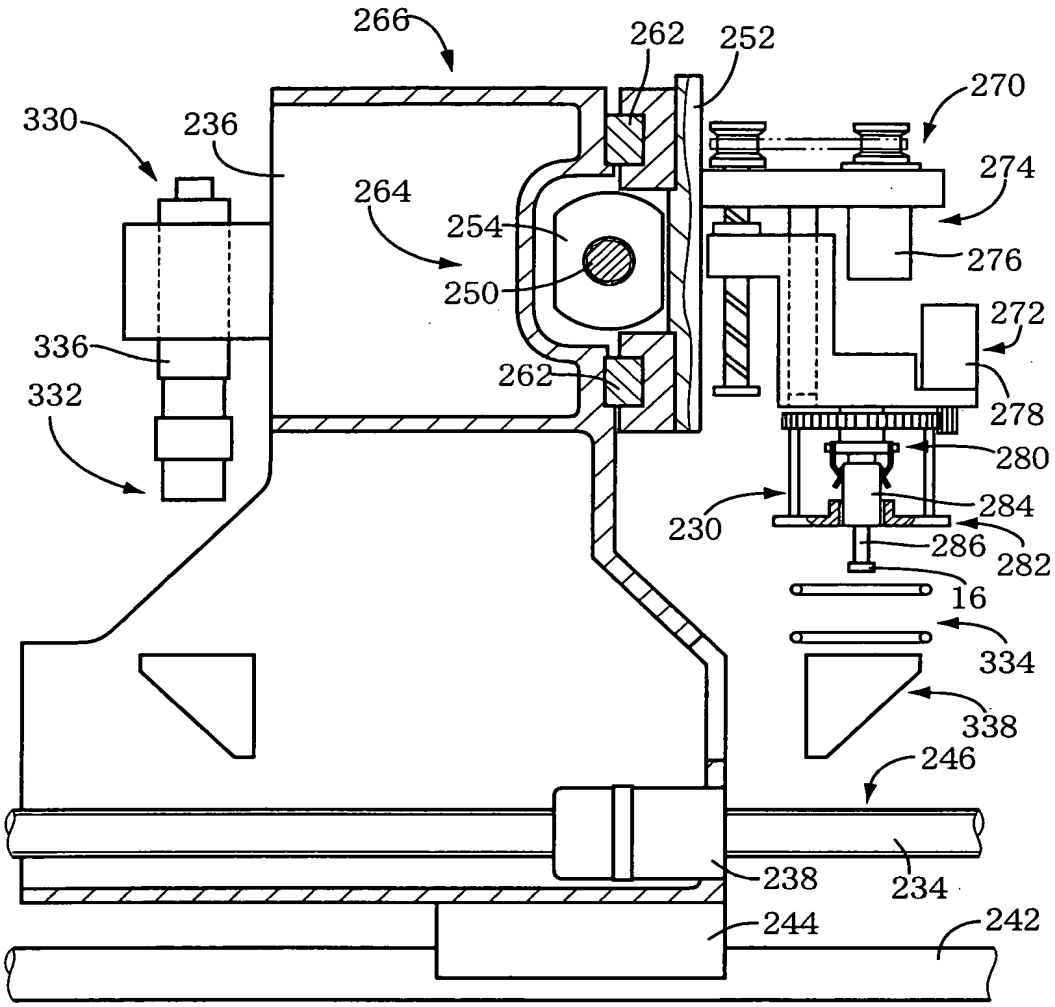

266
262
252
270
330
236
274
264
254
276
250
272
336
262
278
332
280
284
230
286
282
16
334
338
246
238
234
244
242

FIG.7

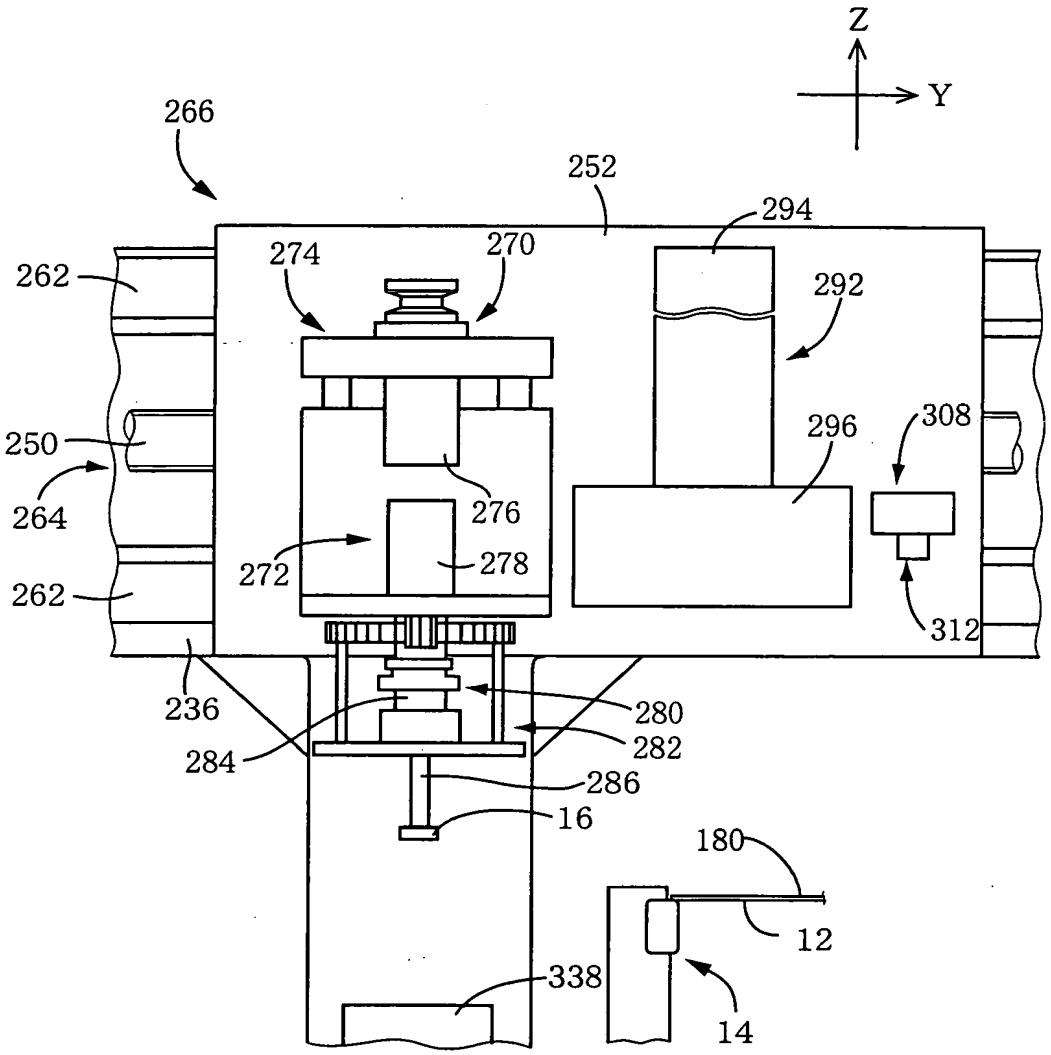

Z
Y
266
252
294
274
270
262
292
250
296
308
264
276
272
278
262
312
236
280
284
282
286
16
180
12
338
14

FIG.8

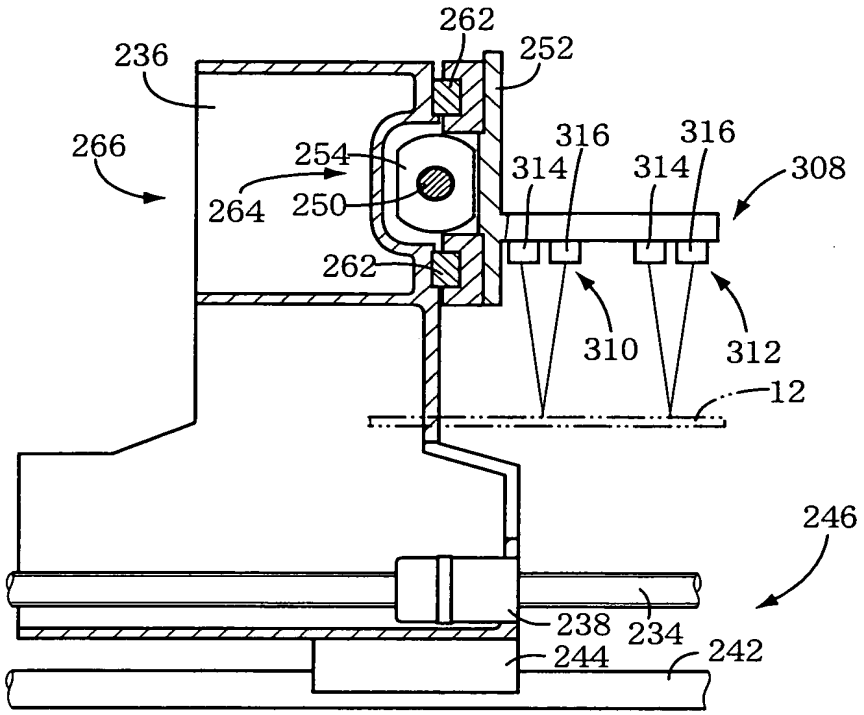

262
252
236
316
316
266
254
314
314
308
264
250
262
310
312
12
246
238
234
244
242

FIG.9

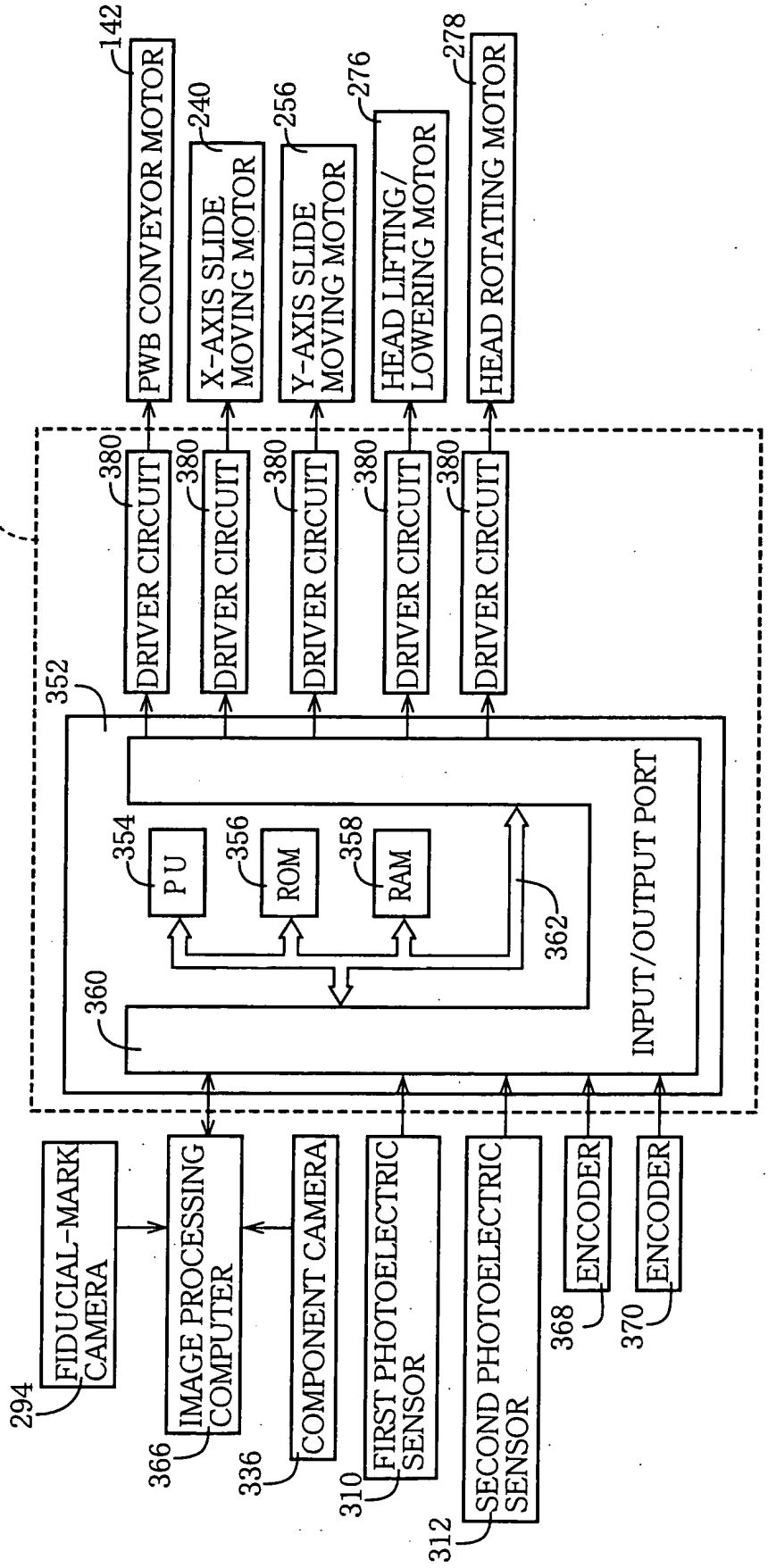

142
PWB CONVEYOR MOTOR
240
X-AXIS SLIDE MOVING MOTOR
256
Y-AXIS SLIDE MOVING MOTOR
276
HEAD LIFTING/ LOWERING MOTOR
278
HEAD ROTATING MOTOR
350
380
DRIVER CIRCUIT
352
354
PU
356
ROM
358
RAM
360
362
INPUT/OUTPUT PORT
294
FIDUCIAL-MARK CAMERA
366
IMAGE PROCESSING COMPUTER
336
COMPONENT CAMERA
310
FIRST PHOTOELECTRIC SENSOR
312
SECOND PHOTOELECTRIC SENSOR
368
ENCODER
370
ENCODER

FIG.10

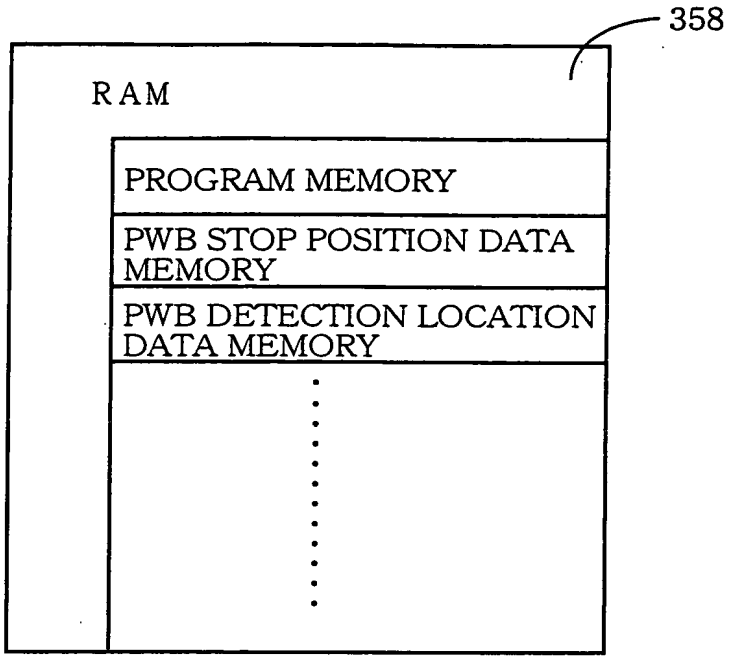

358
RAM
PROGRAM MEMORY
PWB STOP POSITION DATA MEMORY
PWB DETECTION LOCATION DATA MEMORY

FIG.11

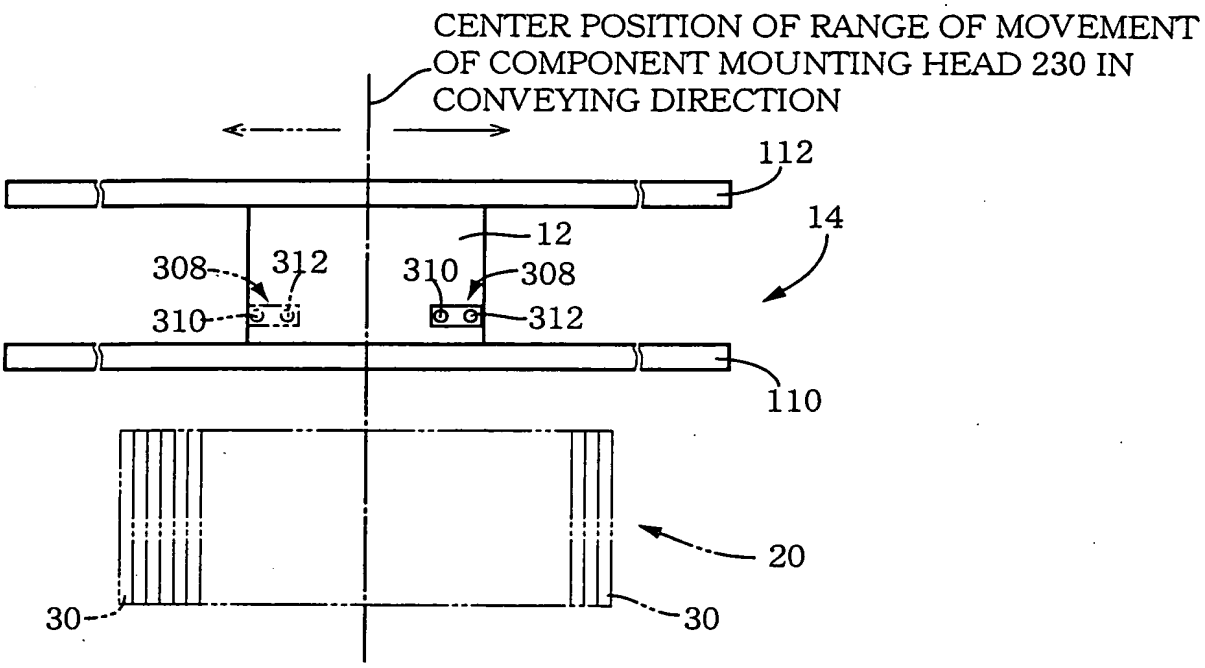

CENTER POSITION OF RANGE OF MOVEMENT OF COMPONENT MOUNTING HEAD 230 IN CONVEYING DIRECTION
112
14
12
308
312
310
308
310
312
110
20
30
30

FIG.12

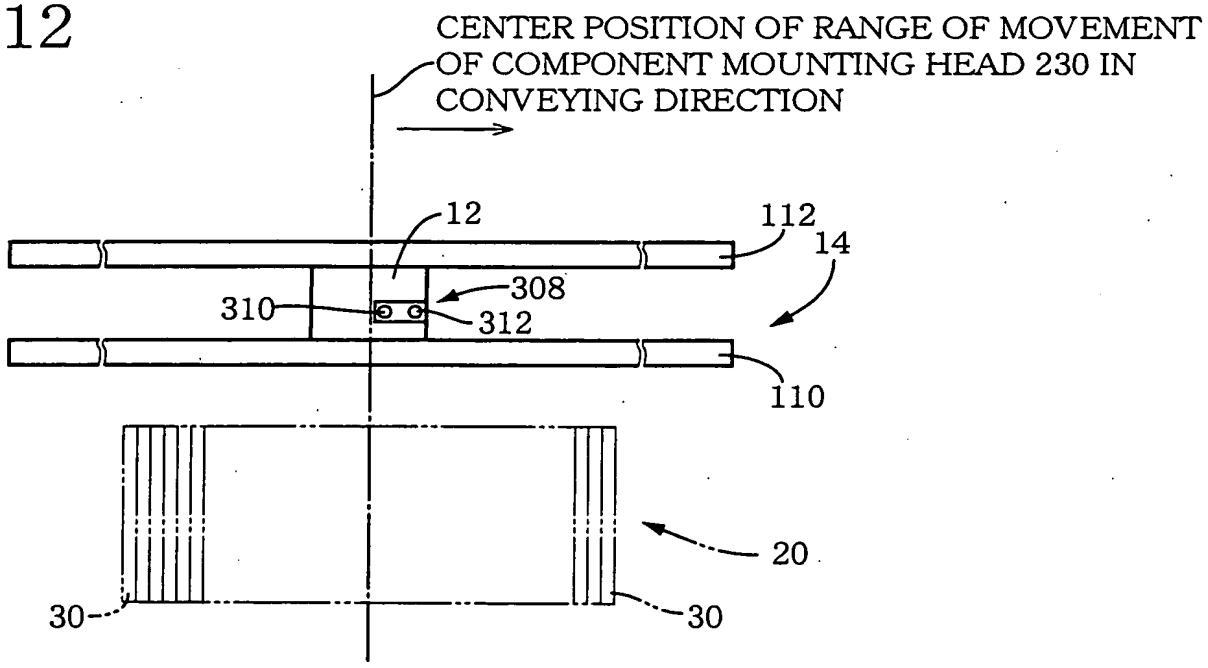

CENTER POSITION OF RANGE OF MOVEMENT OF COMPONENT MOUNTING HEAD 230 IN CONVEYING DIRECTION
12
112
14
308
310
312
110
20
30
30

FIG.13

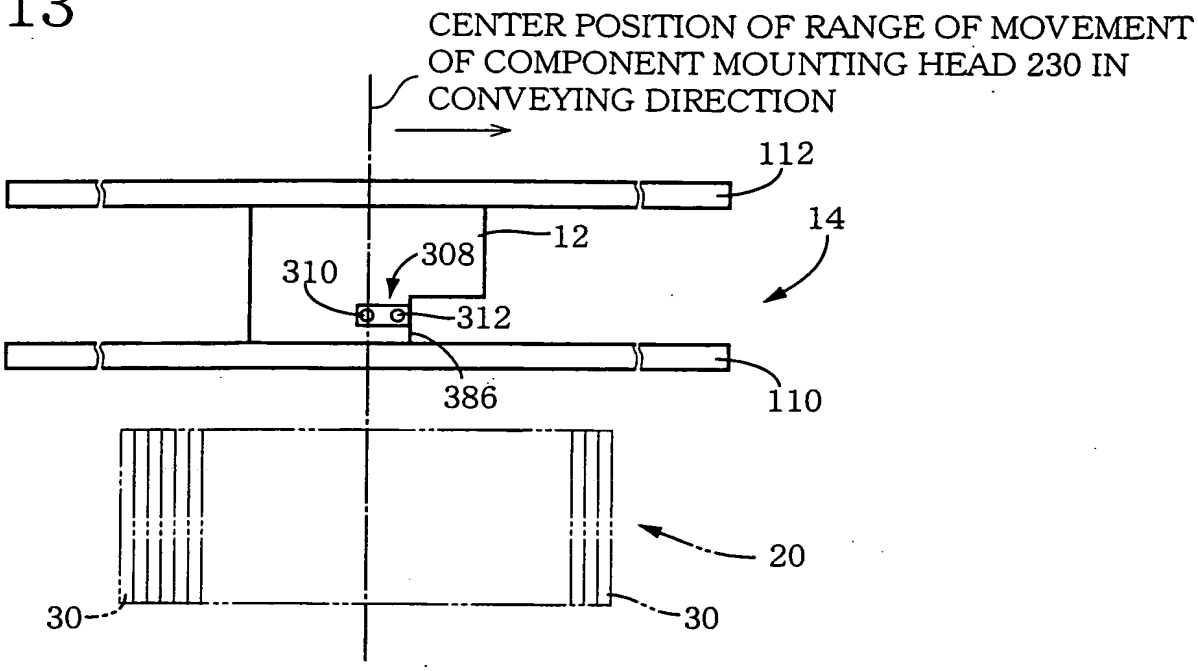

CENTER POSITION OF RANGE OF MOVEMENT OF COMPONENT MOUNTING HEAD 230 IN CONVEYING DIRECTION
112
14
12
308
310
312
386
110
20
30
30

FIG.14

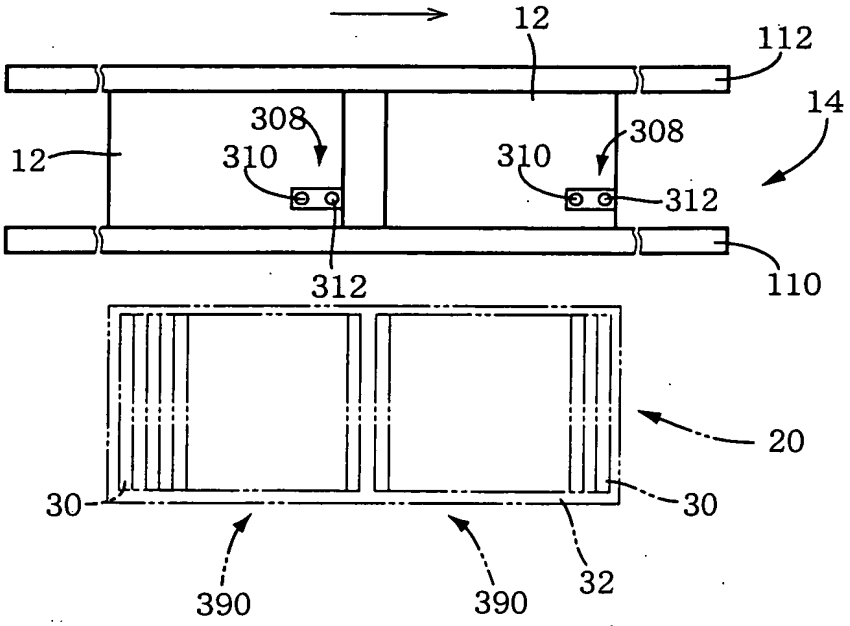

12
112
14
308
308
12
310
310
312
312
110
20
30
30
390
390
32

FIG.15

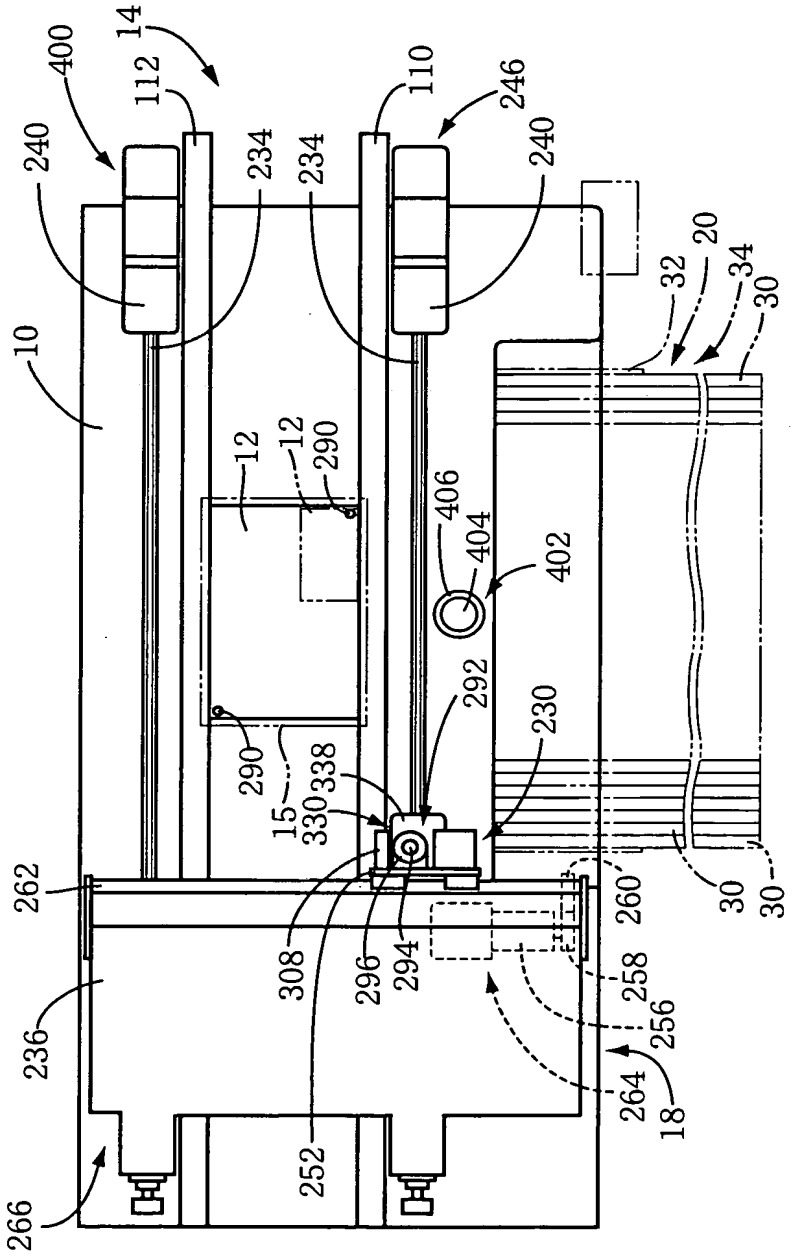

Y
X
400
14
112
110
246
240
234
234
240
32
20
34
30
10
12
12
290
406
404
402
292
230
290
15
330
338
262
308
296
294
260
30
30
258
256
236
264
18
252
266

FIG.16

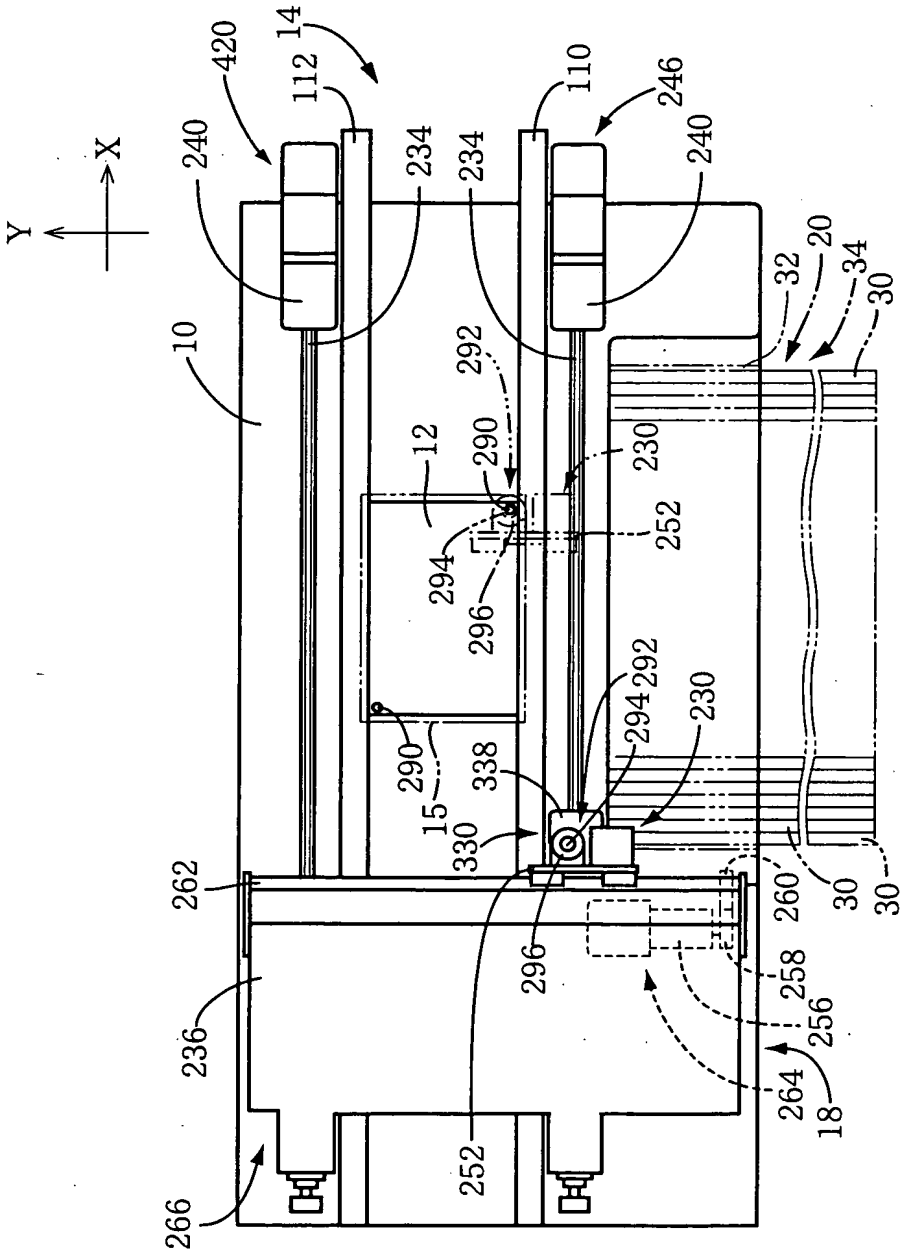

Y
X
420
14
112
110
246
240
234
234
240
32
20
34
30
10
292
12
290
230
252
294
296
292
294
230
290
338
15
330
262
296
260
30
30
258
256
236
264
18
252
266

FIG.17

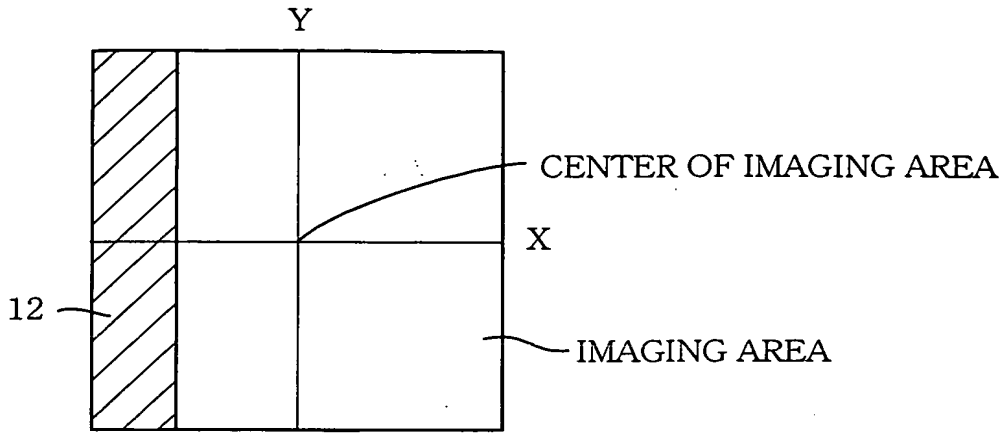

Y
CENTER OF IMAGING AREA
X
12
IMAGING AREA

FIG.18

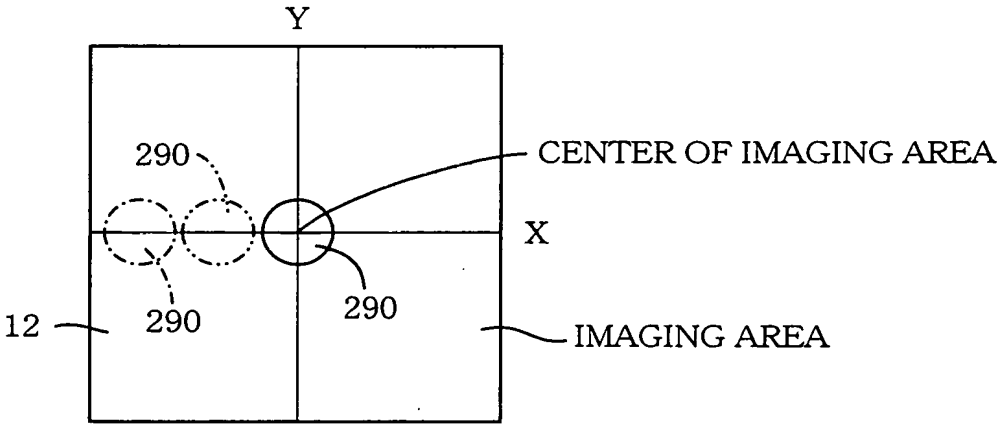

Y
290
CENTER OF IMAGING AREA
X
290
290
12
IMAGING AREA

FIG.19

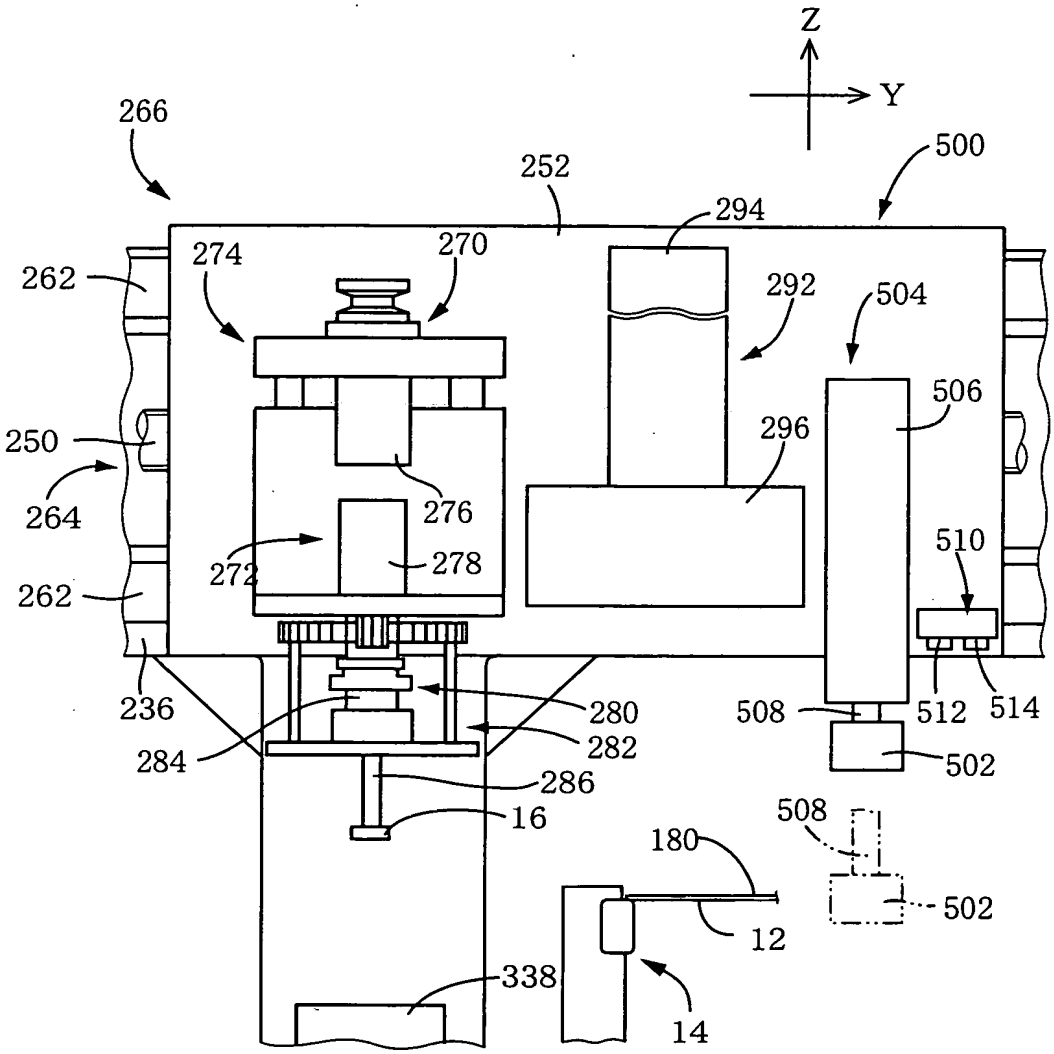

Z
Y
266
252
500
294
274
270
262
292
504
506
250
296
264
276
510
272
278
262
236
280
508
512
514
284
282
502
286
16
508
180
502
12
338
14

FIG.20

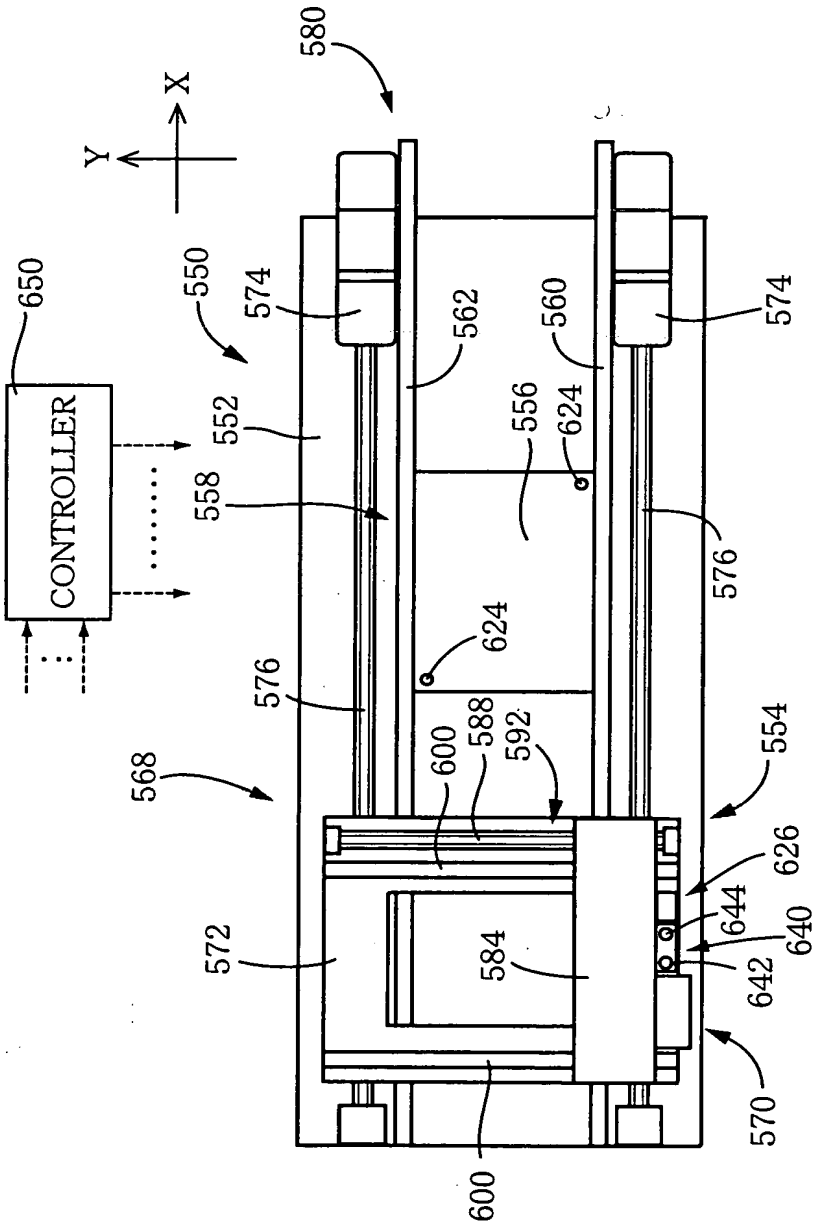
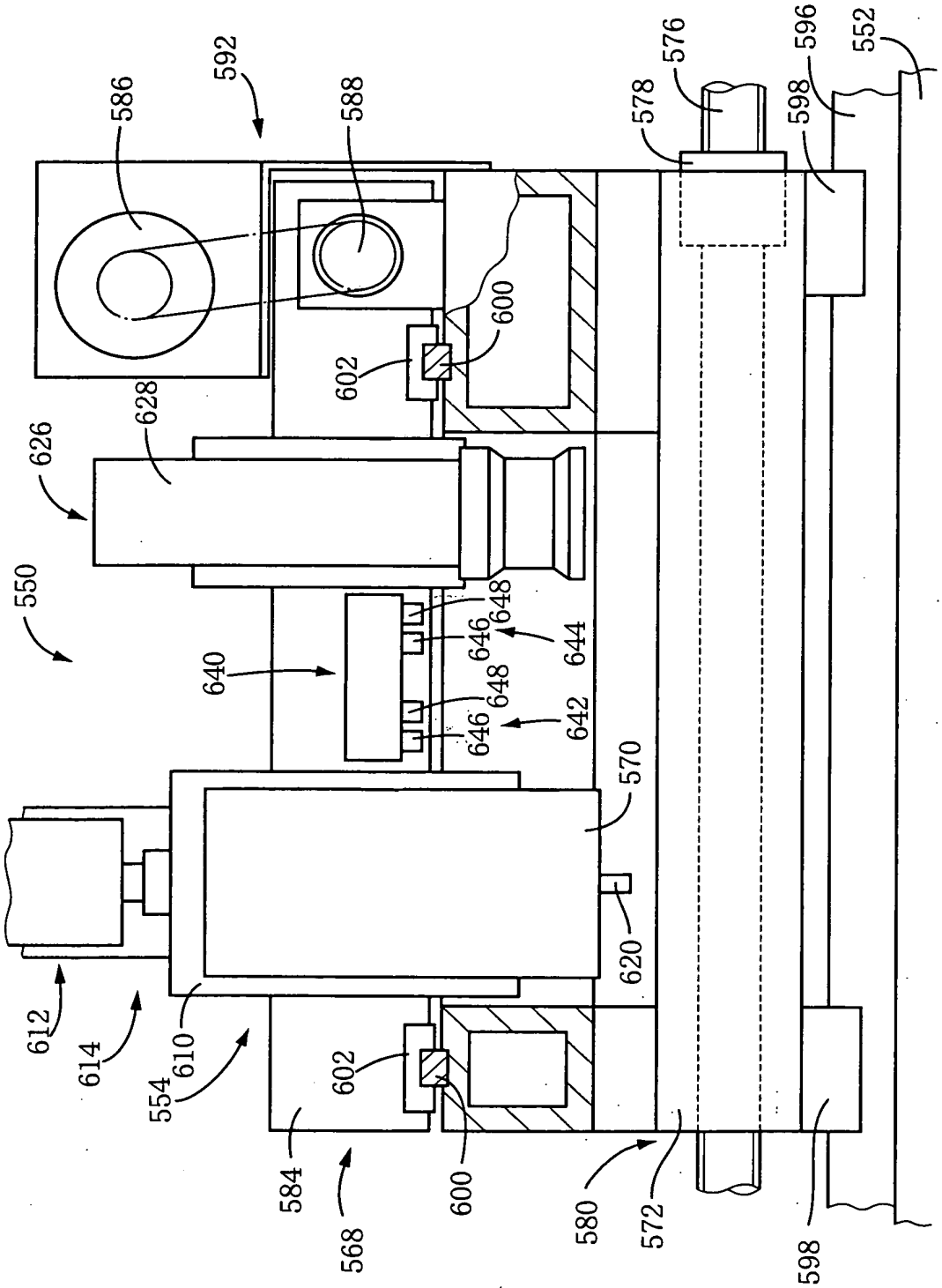

580
X
Y
650
CONTROLLER
550
574
562
560
574
552
556
624
558
576
624
576
588
592
600
554
568
626
644
640
572
584
642
570
600

FIG.21


586
592
588
578
576
596
552
598
600
602
628
626
550
640
648
646
644
642
570
620
612
614
610
554
584
568
580
572

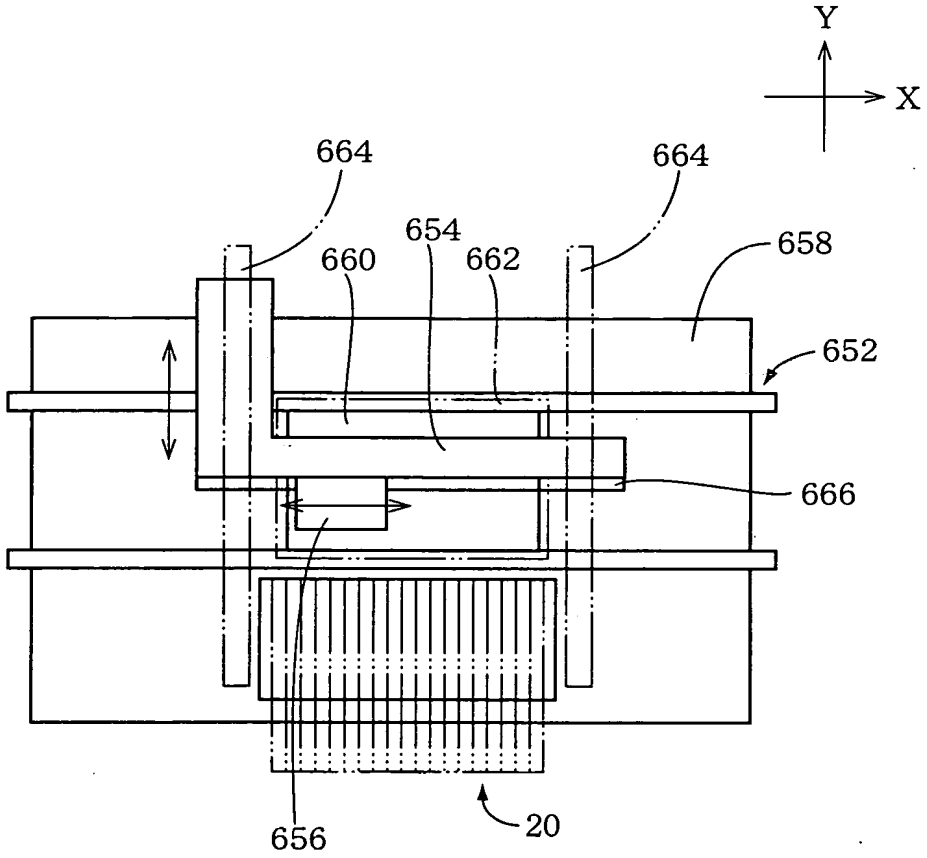



FIG.22